The 50 MHz DX Bulletin

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The 50 MHz DX Bulletin was founded by Harry Schools KA3B. It is dedicated to the understanding and utilization of long distance propagation in the 6-meter Amateur band. This issue, edited and published by Victor Frank, K6FV, is the fourth of a half-dozen "fill-in" issues and was actually written in August 1993. Circulation matters and DX reports should be sent to 12450 Skyline Blvd., Woodside, CA 94062-4541 USA. The Bulletin may be freely quoted, provided that credit is given.

Two Meter Sporadic-E Continues!

Mother nature continued to bless the northern hemisphere with Sporadic-E during July 1993. We have reports of 144 MHz Sporadic-E and scatter from Field-Aligned Irregularities from western North America, the Far East, Europe and North Africa courtesy of West Coast VHFer (P.O. Box 685, Holbrook, AZ 86025), VHF-UHF DXer (c/o Dave Hardy, G8ROU, Thorntree House, Wensley, Matlock, Derbyshire DE4 2LL U.K.) JA1VOK's World VHF News column in FIVE NINE (a Japanese magazine), and Louis Anciaux, HL9UH.

Western North America

From the NC7X Report in VHF-UHF DXer: On the morning of MONDAY the July 19, Two Meter Es was in between Northern California and Northern Nevada to the North Texas/Kansas area from as early as 1630Z to 1809. KI3V/7, Rich, also here in DM09 worked three stations in DM95 between 1735 and 1740 with W5AL at times 30 dB over S9. Reported via packet was N0LL in EM09 from 1757 to 1809. I, like most of us, was at work. DAMN!!

Elsewhere in August 1993 VHF-UHF DXer was a report from Ed, WA6LHD: Dave (N5JHV) is located in grid DM62 in New Mexico. On July 6 at 0541 UTC Dave was being received at WA6LHD via FAI on 2 meters. He made contact at 0446 UTC (Perhaps a misprint here, 0546, or was the earlier time 0441?). Dave's signal got as loud as 5-7. Dave probably worked ten SF Bay area stations in the hour. Prior to this date, Dave and myself had a FAI QSO on June 21, 1993. We even had a SSB QSO on that date. I've often said that it's possible to work him 10 times during the summer Es season on FAI.

It's a shame that more stations do not participate in these openings. The frequency of occurrence (at my location in CM88) is much greater than Aurora openings. And the duration is about the same. They do seem to occur later in the evening, but that may due to the "at work" factor. As is usual for VHF DX work, more power and antenna is better, but FAI can be worked by the minimal meteor scatter station: single yagi and 100 Watts.

Signals on CW have the rough note characteristic of Aurora. Rapid fading seems minimal. Beam headings in my limited experience appear to be best at 15 to 25 degrees North of true; it is hard to draw a good conclusion from a sample of one.

Listed below are three references for information about FAI for the interested reader. Maybe somebody will begin to take advantage of this underused propagation mode.

1) QST, October 1978 pg. 11
2) QST, January 1982 pg. 30
3) ARRL Handbook, 1987 edition, pg. 22

73 Ed, WA6LHD

I would like to add three references of my own!

1) Radioscience, November 1974 (the whole issue)
2) Ham Radio Magazine, November 1974 (ARA)
3) QST, November 1974 (ARA)

This propagation mode has also been noted on 50 MHz from way back, but has not created much interest.

The Far East

June 14: From 2m report in VUDX: Graham, VS6YHT worked Korea again, and then made the first VS6-JA contacts—but again, not without a few problems and frustrations! Eventually he managed to work 9 JA stations. From the list of events which Graham sent, internal Es openings in JA seem quite common, though he says that a good number may have been FAI. Apparently this mode is quite common over there, and is one aspect of VHF DX which may be better exploited in JA than Europe, though EA3ADW is said to have made 700 FAI QSOs this year.

July 10: 0109-0142, HL9UH lists 144.135 MHz A3a QSOs with JA1VOK, JF1SNL, JH1PLK, JF1IJU, JG1GVV, JR1GMK, JR1NKV, JE1IJT, JN1JFK, JS1IXT, and JG7NDN (on 144.200). He comments "Signals fading rapidly, in/out and short periods of no signals. Single call sets made copy of their calls difficult. 144.200 had several chatting and it took me nearly ten minutes to get JG7NDN to acknowledge—came in over the others. Occasionally signals would come in from QSOs and last up to a few minutes, slower fading and appeared possibly meteor enhanced on weak Es. Louis went on to work 65 JAs on 6m between 0219 and 0412.

July 11: 0312-0340Z JA1VOK reports that VS6YHT worked into JA4-JA6 on 2m for the first time. (Though note June 14 report above.)

July 19: ~0200Z JA1VOK reports XX9AS (Macao) heard JA stations on 2m.

August 1: 0630~0830Z JA1VOK reports HLs, and UA0FH into JA on 2m.

0651-0753, HL9UH lists 2m SSB QSOs with JM1BIX, JA1GKP, JF1BOG, JA1VOK, JA1GKP, JG1SQF, JO1BZC, JJ1JHN, JS1IYA, JK1WQS, JH7SCY/7, JF7QEA, JF1SNL, JK7NDY, JF1SNL, JF1NBA, JH0ALH, JN1KND, JP1WNC, JP1OPT, JS1JKD, JO1QSL, JK1QAY, and JA1VOK (again).

Louis comments: Three Es openings on 144 MHz that I have been home for (this summer)! All these typhoons might be major contributors of Es here. I'm setting here (August 8, 11 AM) as Robyn goes past—we only had about 45 mph winds. Tower brackets came yesterday, so I hope to get the EME array up by September 1.

Europe/North Africa

The following reports are lifted from Andy Cook, G4PIQ's 2m report in August 93 VHF-UHF DXer.

June 24: GM0HUO caught OY6VHF/b going auroral for a few minutes that evening. GM4IPK indicates that this beacon has developed a fault and is now off-air.

July 2: With the A index in the 20s, and the K index up to 4, there was a moderate aurora event from around 1630 for an hour or so. Andy, GM4IPK worked a few people, as did Arlen, GM0HUO. According to the cluster spots, GM and SM4/5 were worked from PA and ON.

July 8: OZ4VV worked three EA5 stations between 0937-0947. DD3DJ and DL8EBW worked 9H5CL about 1020. DD3DJ was only running a 4 element yagi under the roof! DL8EBW also heard a couple of other 9Hs and IT9ZWV. At about the same time OK2KZR worked 7X2DX (JM16, Algeria). Seghir, 7X2DX also heard LZ1ZX.

Between 1200-1230, Joachim, DL8HCZ, worked a couple of IT9s and five 9Hs. At the same time PA3FXW worked IK8ETN as did DL8EBW. Oliver, DL1EJA worked IW8DRG in JM79.

GM4IPK reported an auroral event in the afternoon to LA4XGA.

There was another precursor to the main bash at 1550 when some 9H/IT9 stations were worked from ON, but it all really started to happen around 1645. Ken, G4IGO, worked into SP9, HA, I3, OM3, YU, UB5, SM0, and SM5 - all that variety within 35 minutes! At that time, David, G4ASR, started to work into SP9, OK2 and OM3. He then worked RB5WU, and then, at about 1715 started to work HA stations. At about this time 2m was open from the south coast of G into S5, and Vince, G0ORC (IO93, 150W) was working into YU7 & 4N and I7. IC8FAX worked OZ, LA, G & GM during this period.

There seems to have been a short intermission until about 1735 when G4ASR was working YU7, G0ORC was into YU1, and G0KON was into HG, S5, and I. From the east coast (of G), the opening was very patchy, and John, G4SWX only worked I4RHP and YU1LA.

Up North, so to speak, the first reports are from Iain, GM3JFG working SP8RTJ on FM at 1715, and then going to SSB and catching up with SP2, 3, 4, & 7 through until 1729. At 1720, Arlen, GM0HUO reported hearing I0. At 1801, Iain briefly worked an SP2, and at 1813, Andy, GM4IPK caught a fleeting OM3 and at 1830 worked a few other OM3s. He was also called by an SP6. 1905 brought the next bout, with Iain, JFG working into SP9/6, and the final snitch appeared at aabut 1935 from ON into 9H. All in all, a day of flying openings. Andy, IPK, and Arlen, HUO both reported extensive and extended openings on band II to F and I, so it may be that the ionization intensity was only just on the borderline for 2m propagation and it was just popping in and out. The total number of paths worked in the day is impressive, indicating that the E layer was ionized over much of Europe at one time or another, rather than just a single reflecting area.

July 10: brought a short opening from the Ruhr area of Germany into EA7 at about 1500, and Mark, G4YRY also heard some CT1 and possibly EA8 stations.

GM4IPK reported a "weird" auroral event with Keith, GM4YXI on a Northwest heading at 59A, but with no one else, or any beacons audible.

July 16: Colin, G0CUZ worked HA8CE, and Mark, and also heard some HG activity both at about 1740. Then, around lunchtime on **July 17** Mark heard what he again thought was CT and EA8.

July 18: was the biggie! I saw from the DXCluster that there was propagation between CT and EI, and thought that I should take a look. It crossed my mind that a reflecting zone in the area for CT-EI could give us the first part of a double-hop path to EA8 (the Canary Islands). You can imagine my astonishment when I heard a Spanish-speaking voice on 144.300 peaking significantly further west than I would expect for mainland EA! To complicate matters, the south coast had propagation into CT at the same time (presumably from the first hop), and I think some confusion, not to mention tempers, must have been raised as people on the east coast screamed at EB8ALZ (IL18) while those on the south coast called the (single-hop) CTs! Also worked was EB8BTV. Congratulations to the few UK stations who worked the EA8s, including G4YRY, G4RRA, G4ASR, GW0PZT, GW6JNE, and GW4VEQ, but it was pretty frustrating from over here to listen to one QSO where the entire three minutes that the EB8 was audible (at S9+) was spent trying to get the last two letters of a locator over—but then that's life! As John, G4SWX put it—that's your three minutes for the next ten years—the last Es opening to EA8 he heard was ten years ago, lasted just about as long, and was about as productive. As for me—I'm not bitter at all that he just got G4?IQ from my call—I just wish I spoke Spanish.

John, myself, and a number of others all worked CT (IM58) during the same event, but there was other interesting stuff around to be worked too. G1SWH, GI1CET, GW4VEQ, and GW0PZT worked into CN8, and there are more stations than CN8ST active. Edward said that CN8HB told him when he worked him that he had 100W and a vertical antenna! I understand that EA9 was worked from the west coast of G, and Edward, PZT, worked 10 CT stations in all, from IM67/58/69 and IN50—some pretty rare! Jim, CI1CET, worked CN8HB and CN8CC and CN8ST. Jim was first alerted by hearing CT and EA on 144.300 at 1800 (a *very* good reason for leaving the rig monitoring .300!) which lasted until 1830. Then nothing until about 2000 when "all hell broke loose on .300 with CN8ST at 59++". Jim comments that CT1WW was an absolutely monstrous signal throughout the event. He feels however that too many stations tried to stay on .300 causing the usual chaos.

July 20: GM4IPK reported a strong aurora, with SK4MPI peaking 59+40—much louder than he had ever heard it before. However, strangely, there were no takers to Andy's CQ calls, and no other events were reported on that day. Andy did say that he thought it may have been very local to him since the direction was moving rapidly, and there was very significant QSB.

What are all those plots?

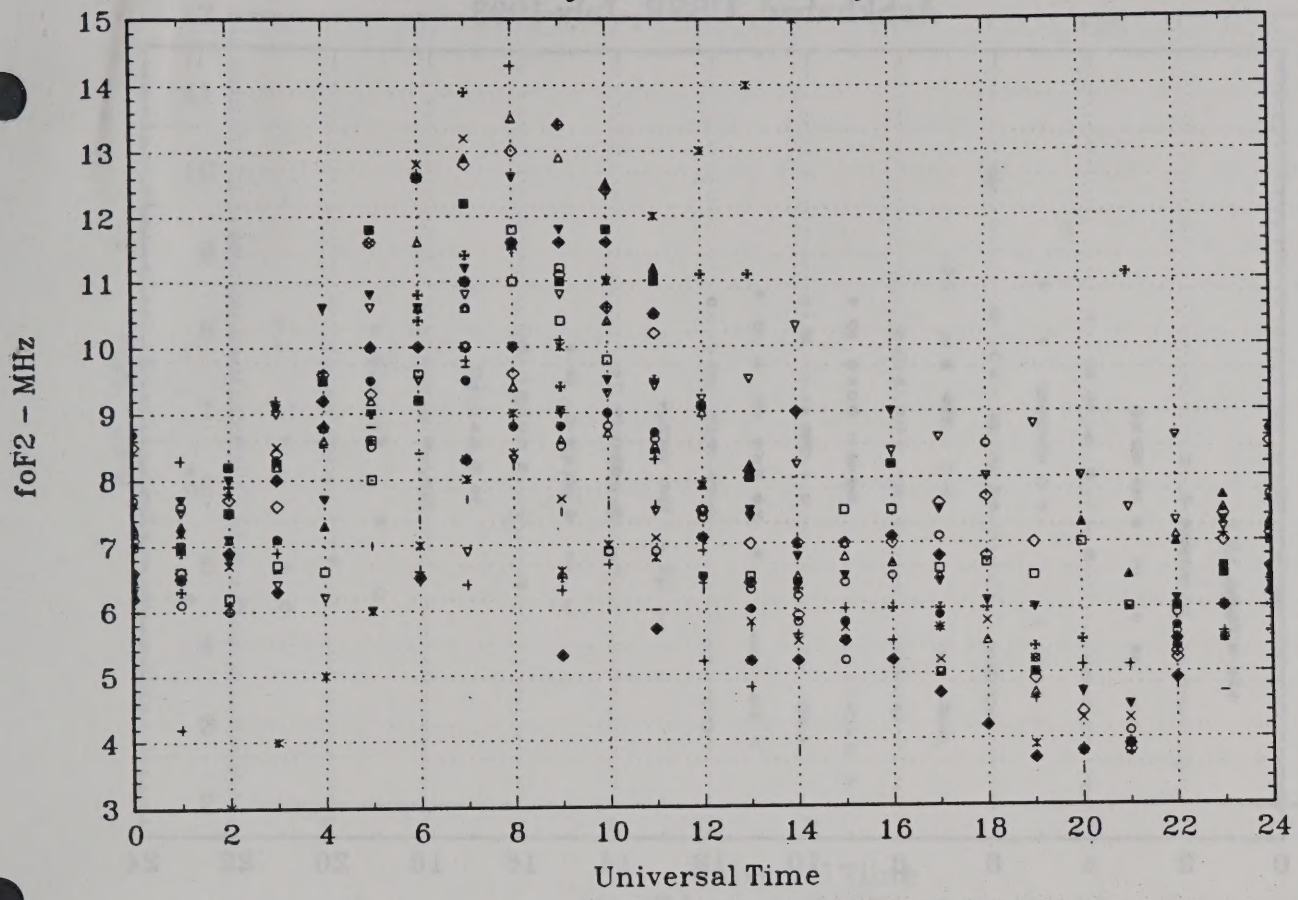
We have prepared mass plots of foF2 for the whole month of July 1993 for 12 vertical-incidence ionospheric sounding stations around the world. A map showing the location of these stations is on page 2 of our companion issue, August 1993. Similar F2-layer critical frequencies exist at the same local times and magnetic dip angles.

The ratio of the Maximum Usable Frequency (MUF) to foF2 can range from just under 3 for 3000 km paths to perhaps 4 or more for scatter or long earth-detatched paths, especially across the geomagnetic equator. An foF2 of 10 MHz thus indicates that 10 meters should be open for paths of 3000 km or more whose reflection point is at the same magnetic dip angle and local time as the sounder. An foF2 of 12.5 MHz indicates possible six meter openings, and an foF2 of 16 MHz indicates likely strong openings for properly located 50 MHz stations.

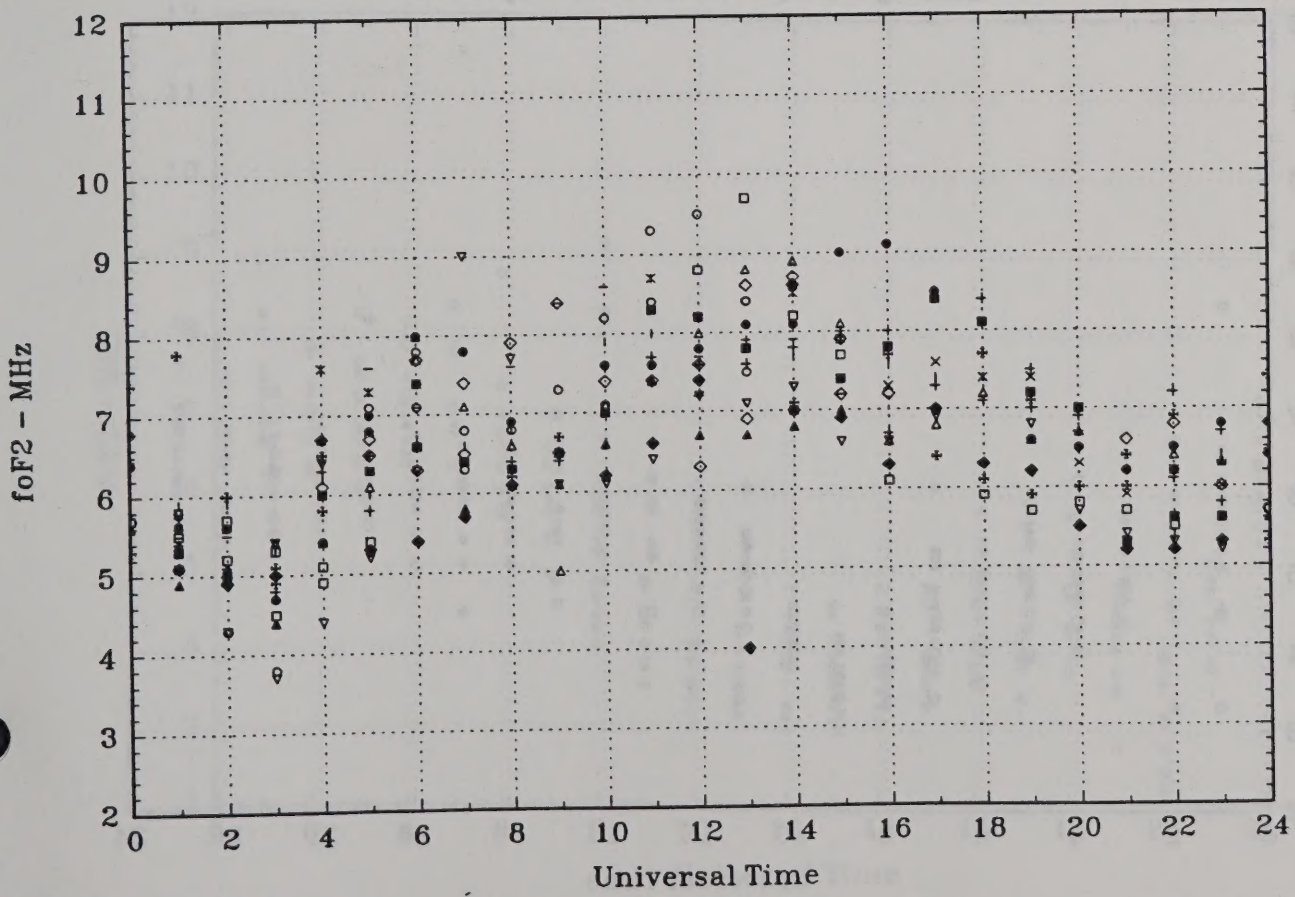
Note that the highest ionospheric F2-layer critical frequencies occur near ±36° magnetic dip angle. Note that the closest we can come to that with daily from Solar Terrestrial Dispatch is Taiwan. There is no data available between +36° and -36°. Why? One reason is the spread echoes observed on soundings at night near the magnetic equator. See our discussion on pg 8 of last month's issue.

There is still hope for 50 MHz F2-layer propagation at times in the Far East. As the equinox approaches, the critical frequencies on both sides of the geomagnetic equator should equalize, promoting propagation from one side to the other by earth-detached F2-layer modes. Then, of course, there's TEP scatter which usually occurs during the time period when foF2s are dropping. Otherwise things look grim for 50 MHz propagation to temperate latitudes during the coming months, but then you knew that.

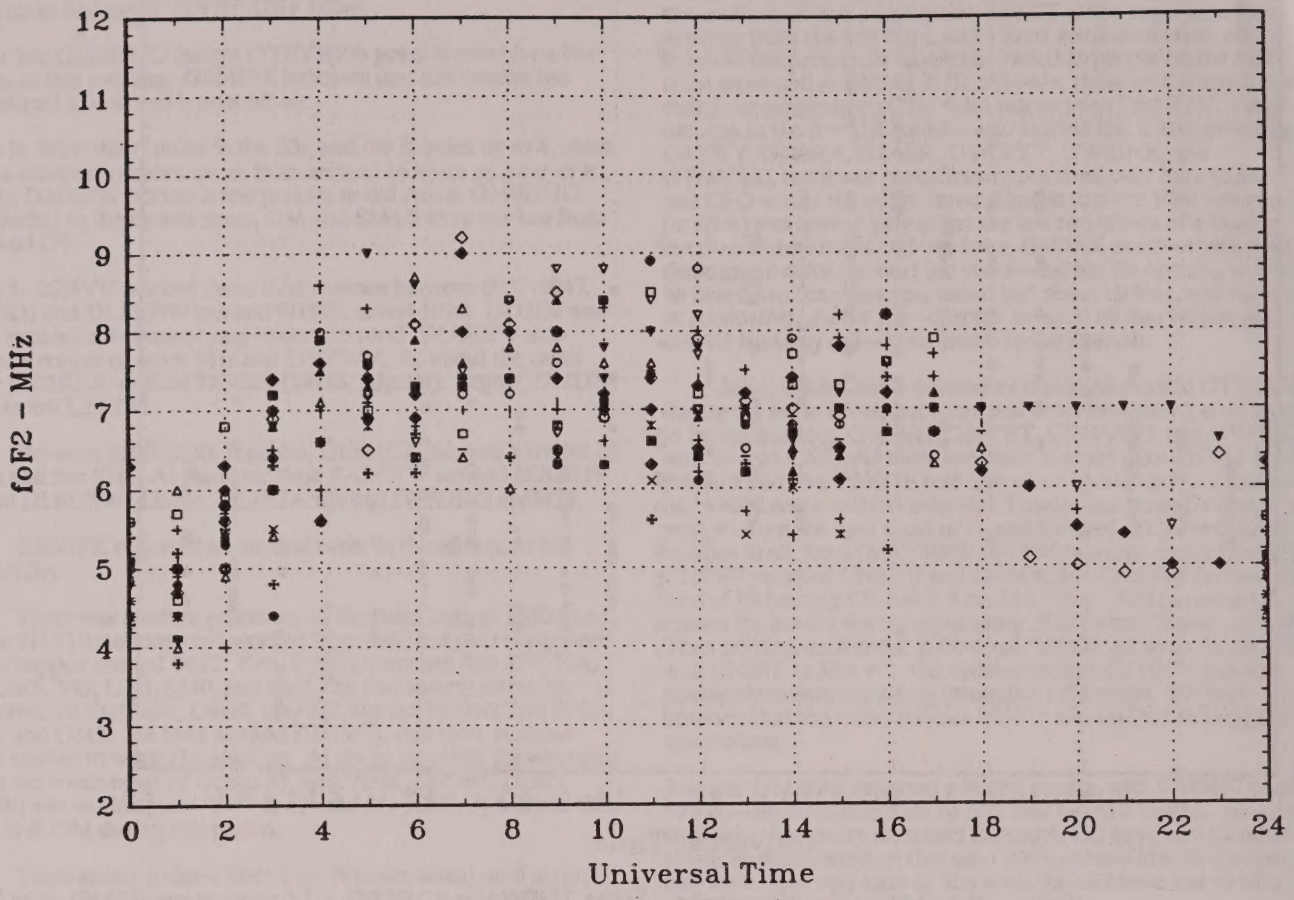
Taoyuan, Taiwan, July 1993



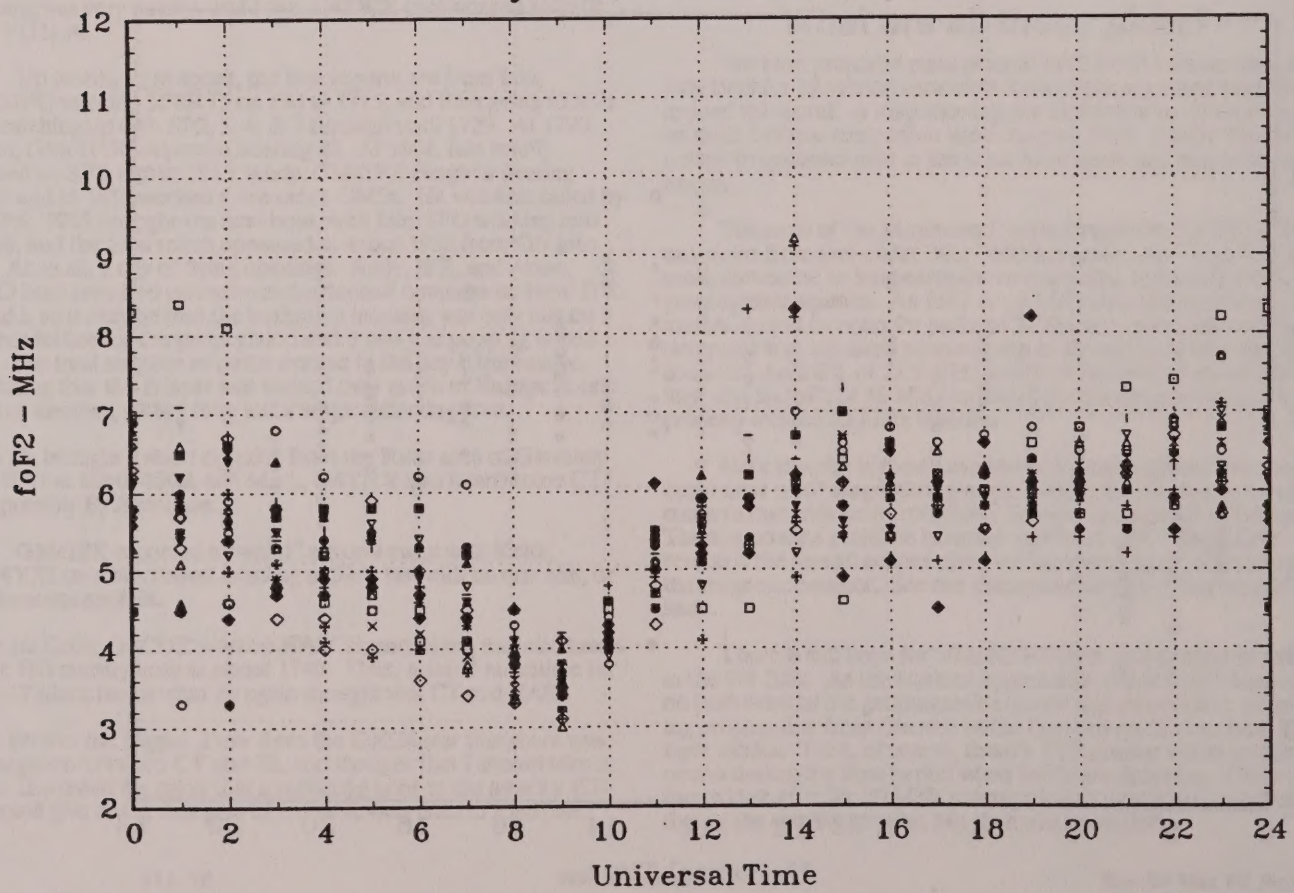
Nicosia, Cyprus, July 1993



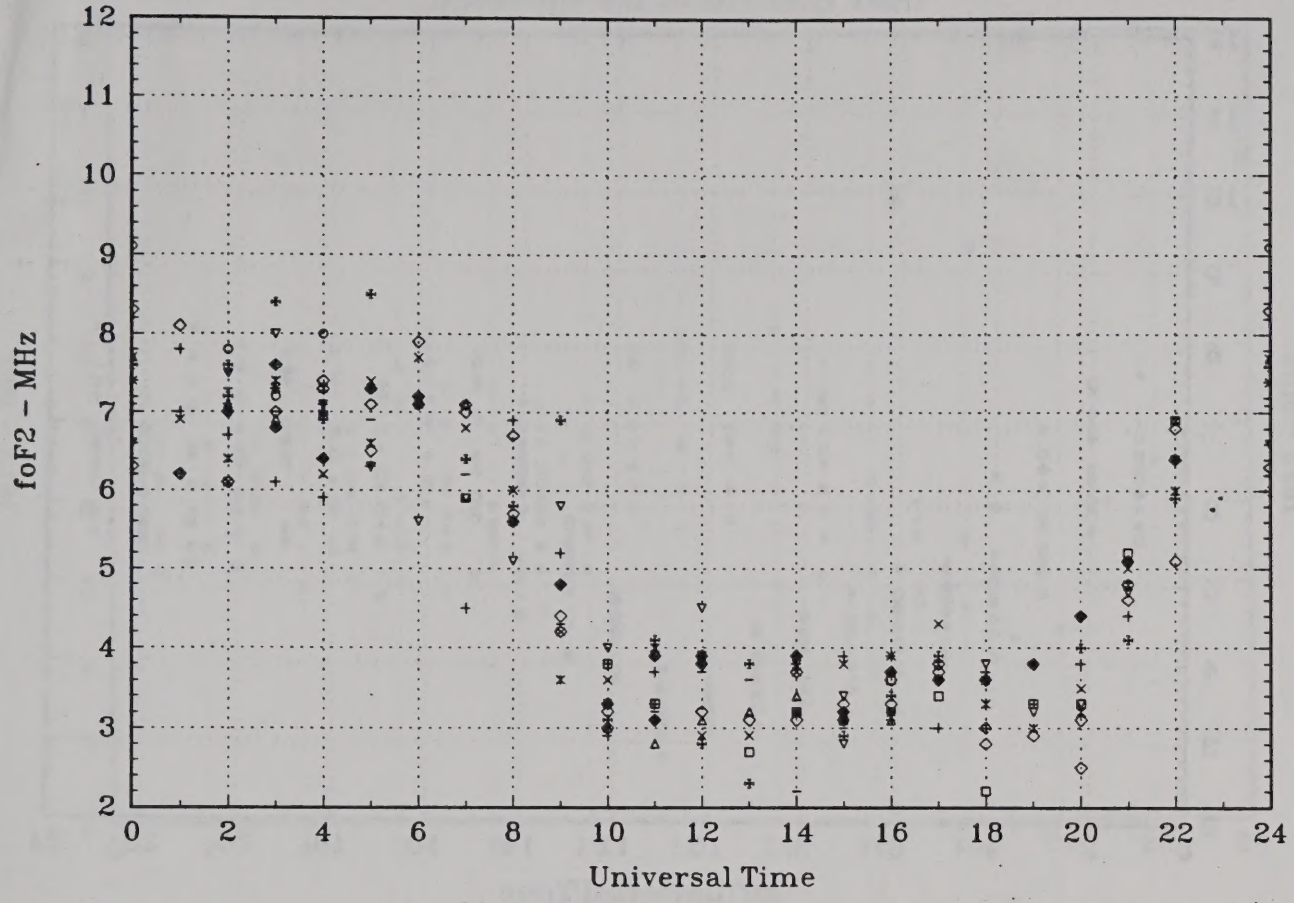
Ashkhabad, USSR, July 1993



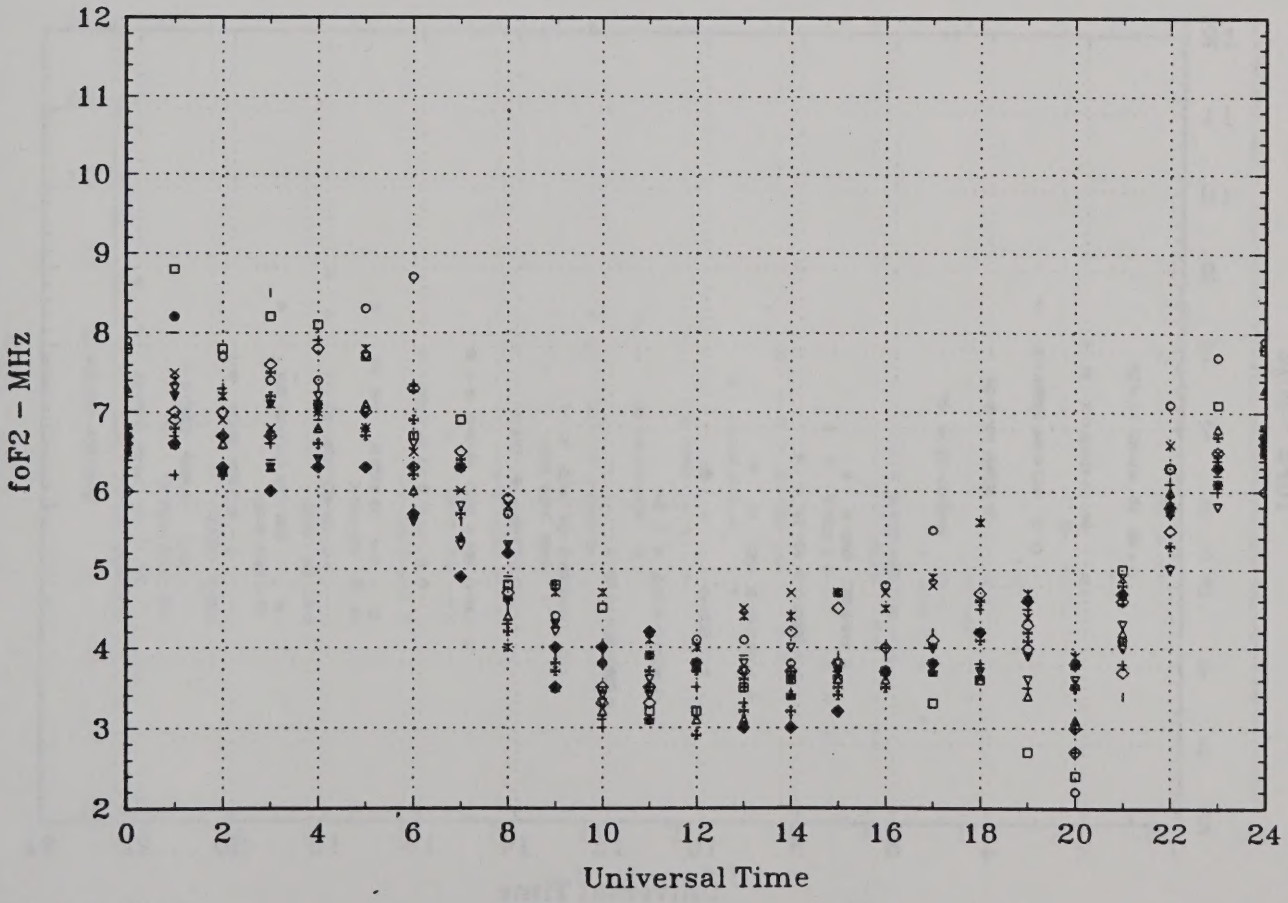
Ramey AFB, Puerto Rico, July 1993



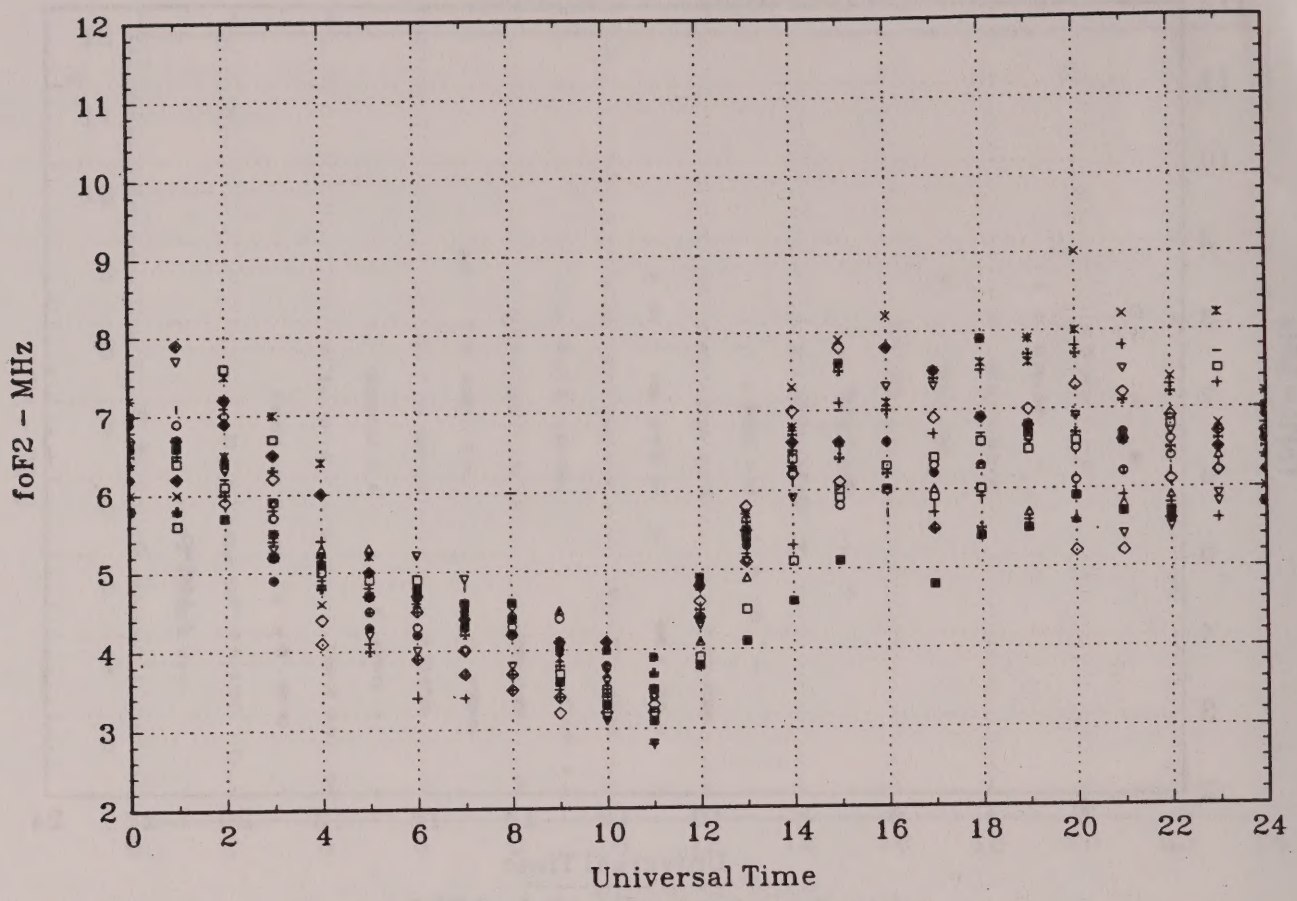
Townsville, Australia, July 1993



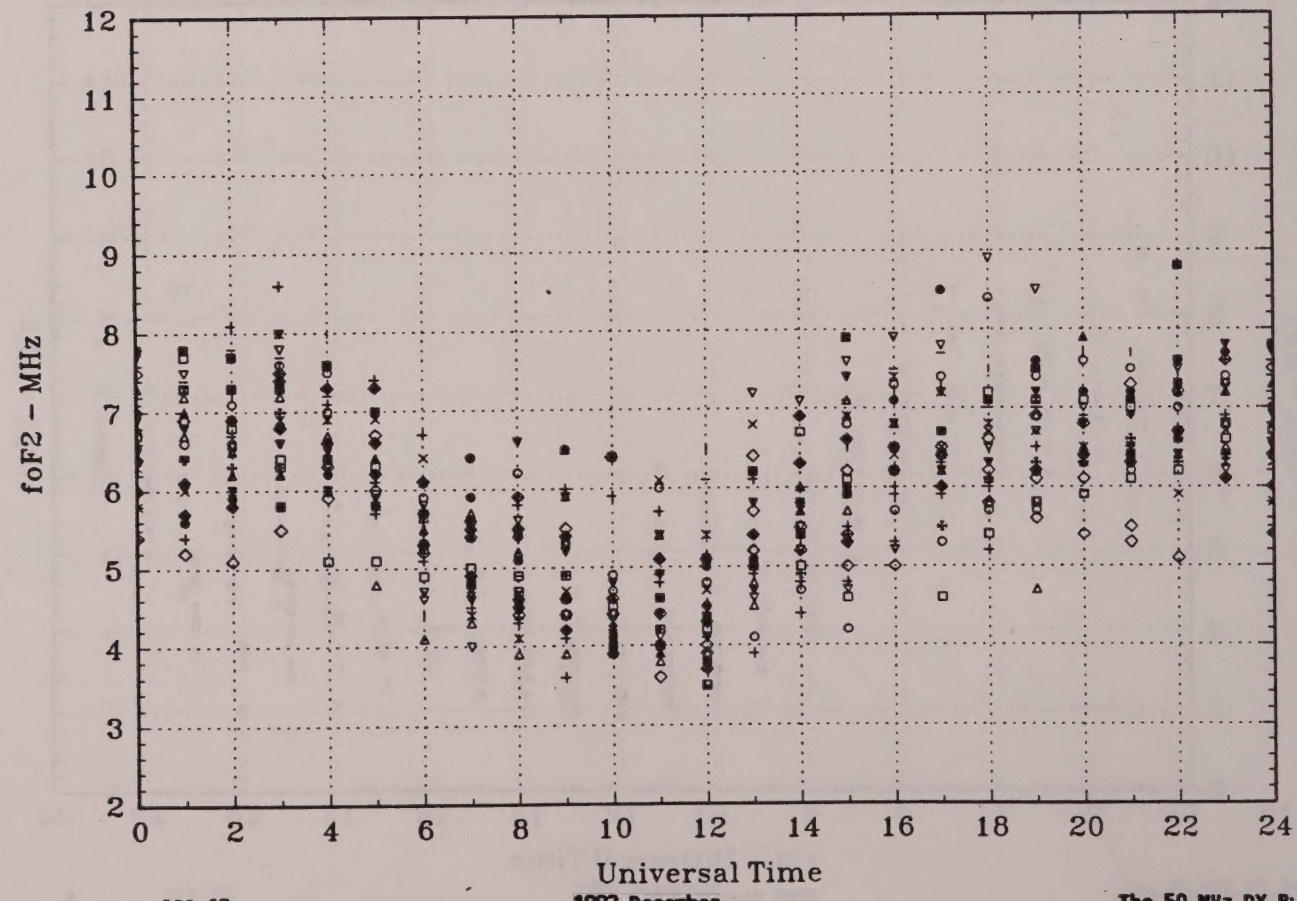
Camden, Australia, July 1993



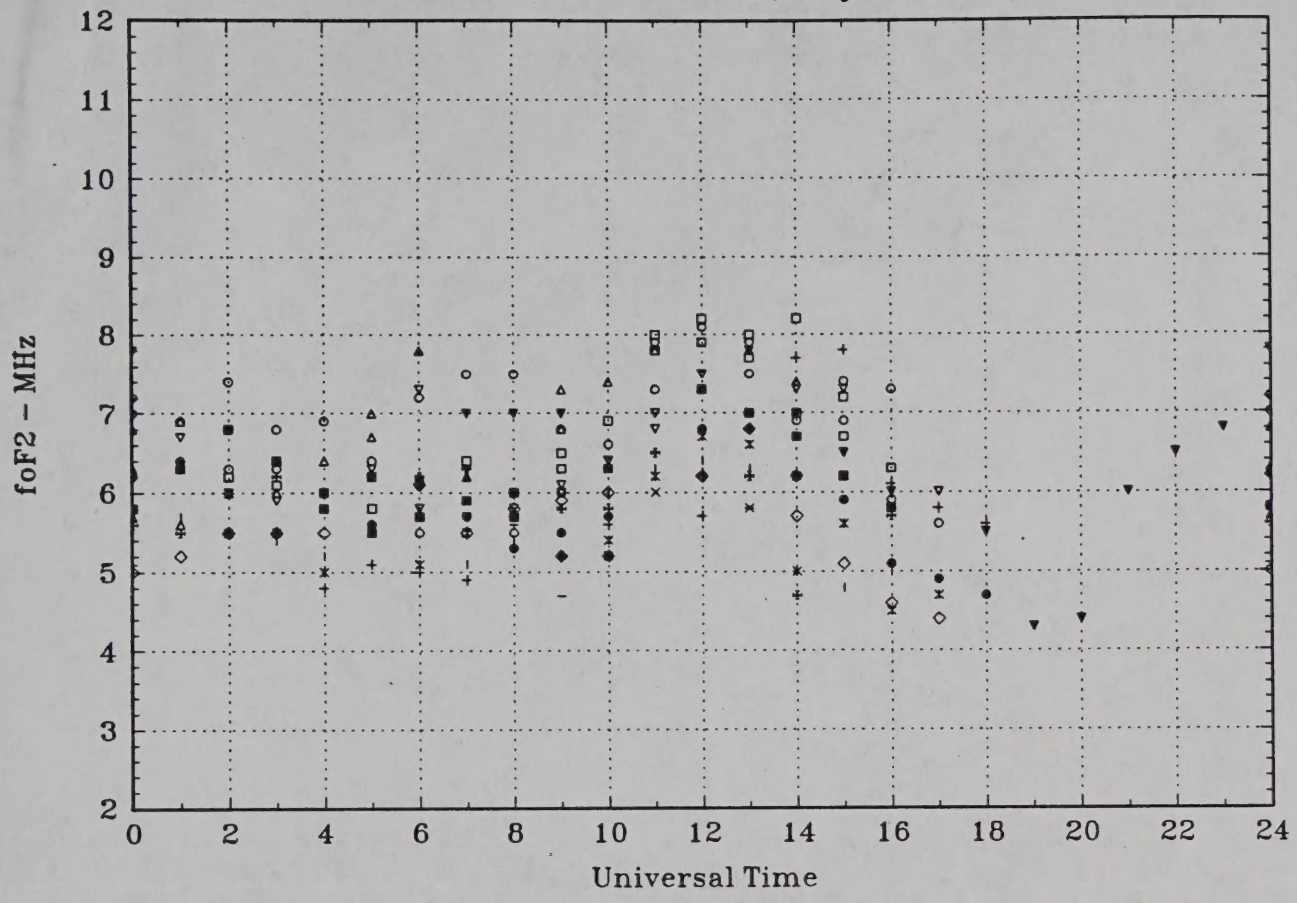
Dyess AFB, TX, USA, July 1993



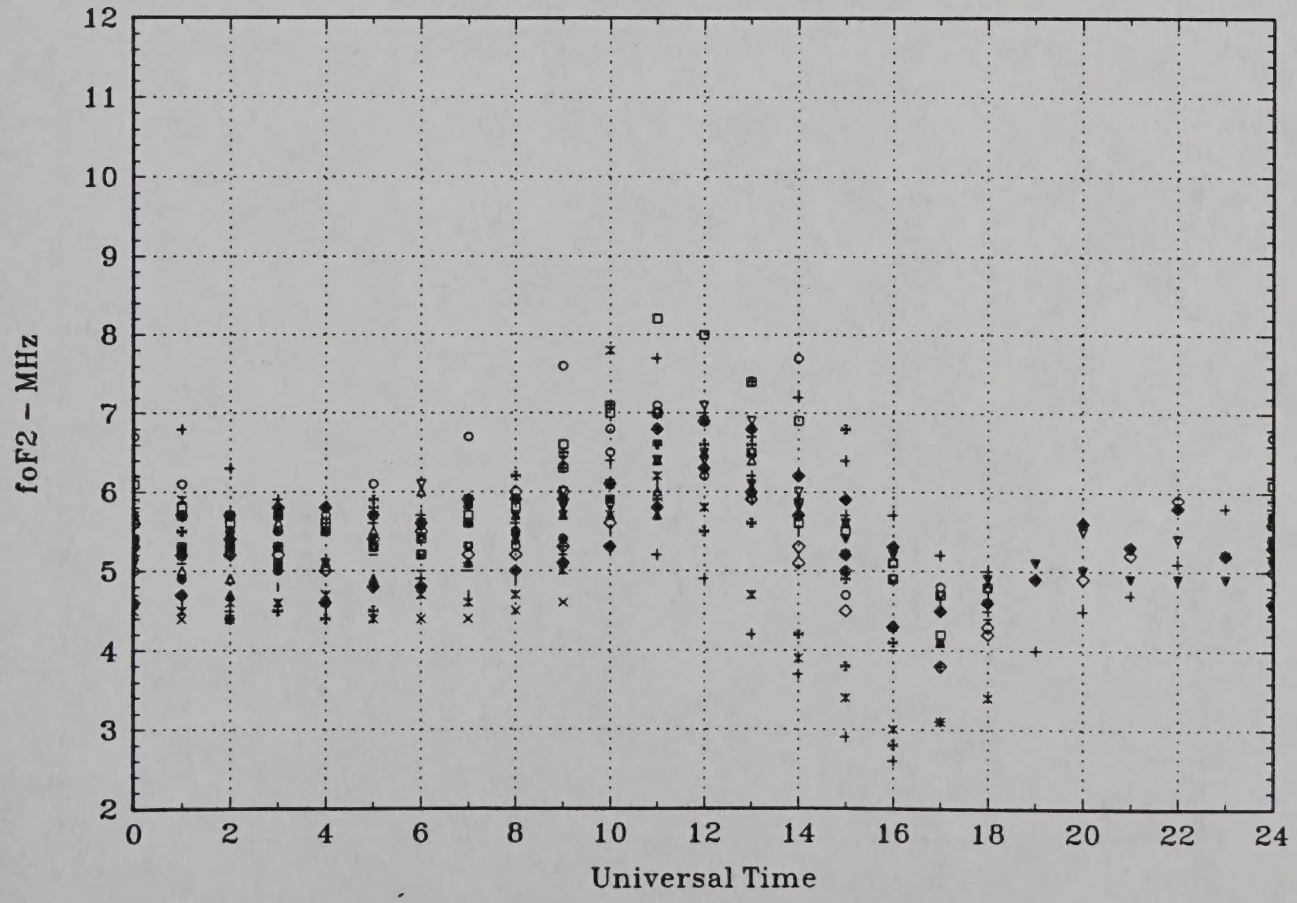
Vandenberg AFB, CA, USA, July 1993



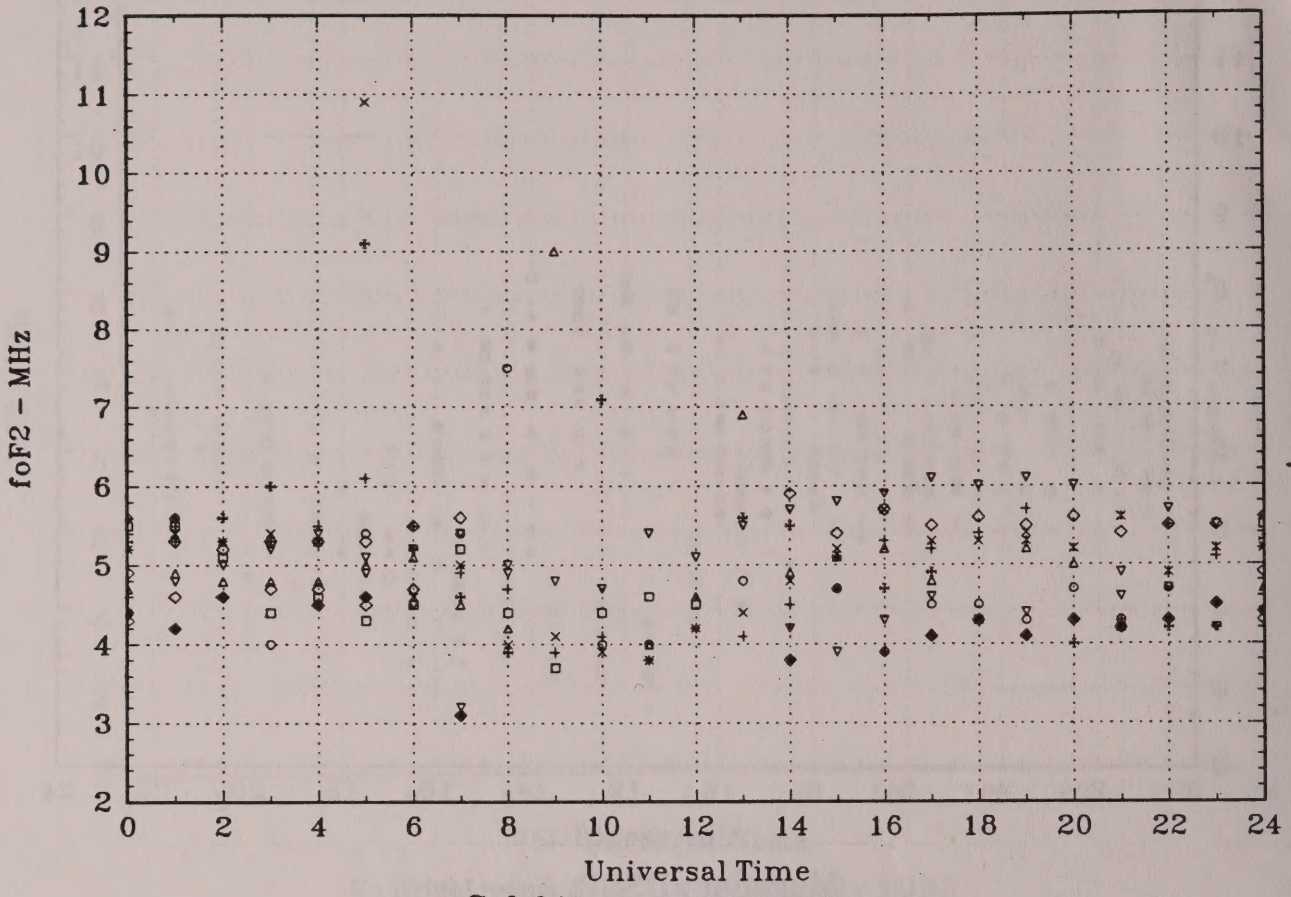
Khabarovsk, USSR, July 1993



Magadan, USSR, July 1993



Eielson AFB, AK, USA, July 1993



Salekhard, USSR, July 1993